OIPE JC103
SEP 15 2004
PATENT & TRADEMARK OFFICE

FIG. 1

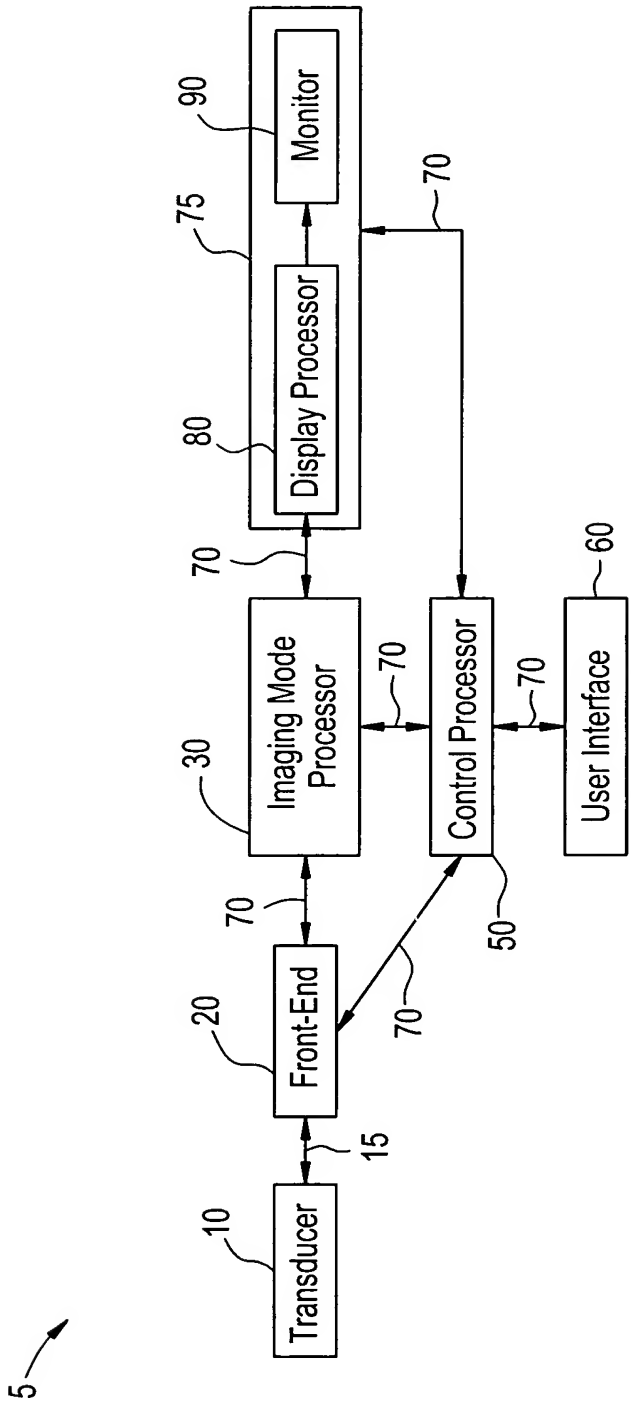


FIG. 2

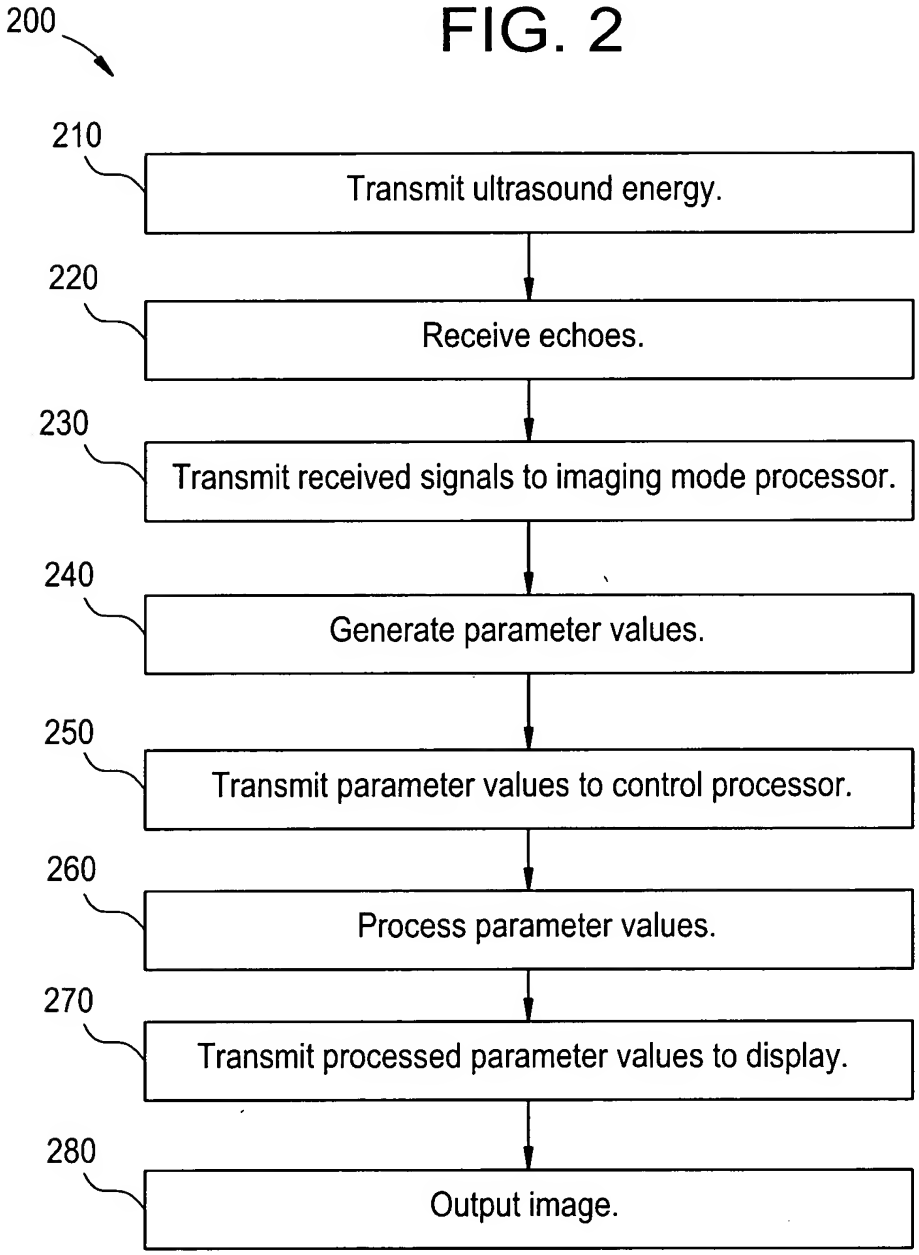

200
210
Transmit ultrasound energy.
220
Receive echoes.
230
Transmit received signals to imaging mode processor.
240
Generate parameter values.
250
Transmit parameter values to control processor.
260
Process parameter values.
270
Transmit processed parameter values to display.
280
Output image.

FIG. 3

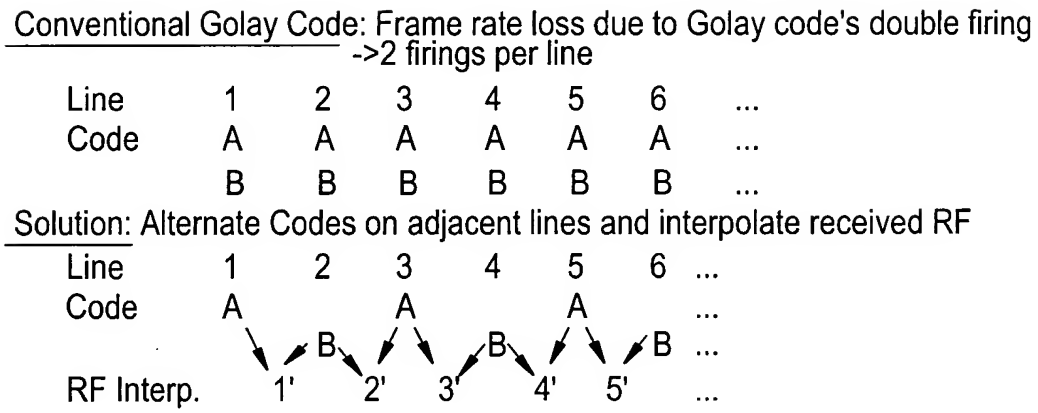

Conventional Golay Code: Frame rate loss due to Golay code's double firing
->2 firings per line
Line 1 2 3 4 5 6 ...
Code A A A A A A ...
B B B B B B ...
Solution: Alternate Codes on adjacent lines and interpolate received RF
Line 1 2 3 4 5 6 ...
Code A A A ...
B B B B ...
RF Interp. 1' 2' 3' 4' 5' ...

FIG. 4

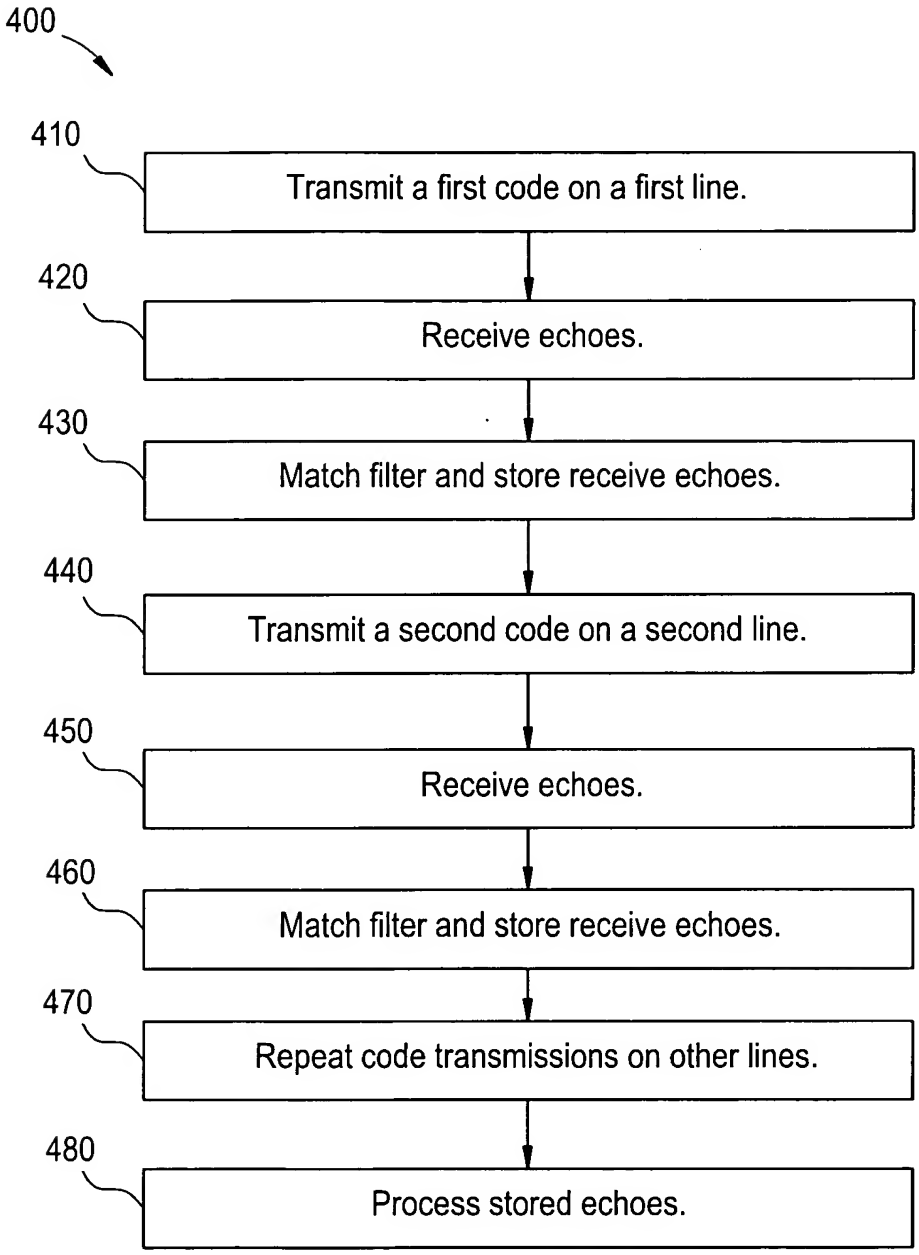

400
410
Transmit a first code on a first line.
420
Receive echoes.
430
Match filter and store receive echoes.
440
Transmit a second code on a second line.
450
Receive echoes.
460
Match filter and store receive echoes.
470
Repeat code transmissions on other lines.
480
Process stored echoes.

FIG. 5

Alternate Solution: 1 3 3 1 Filter

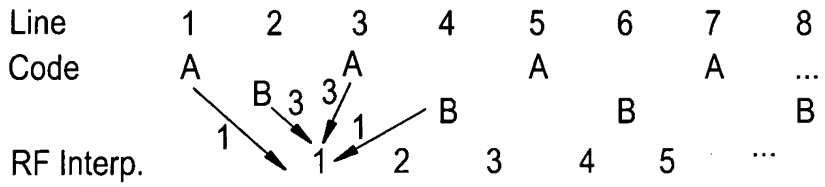


FIG. 6

line zone	1	2	3	4	5...
1	A	B	A	B	A
2	B	A	B	A	B
3	A	B	A	B	A
4	B	A	B	A	B
...					

FIG. 7

MLA (2 for 1) Situation Alternative Codes on adjacent lines and Swap Right pipe of odd lines with left pipes of next even lines

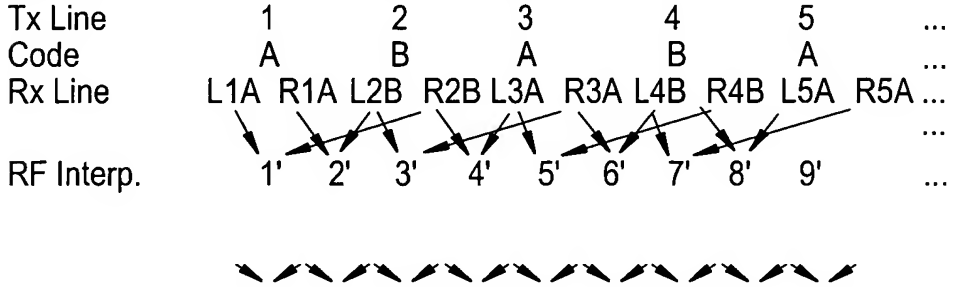
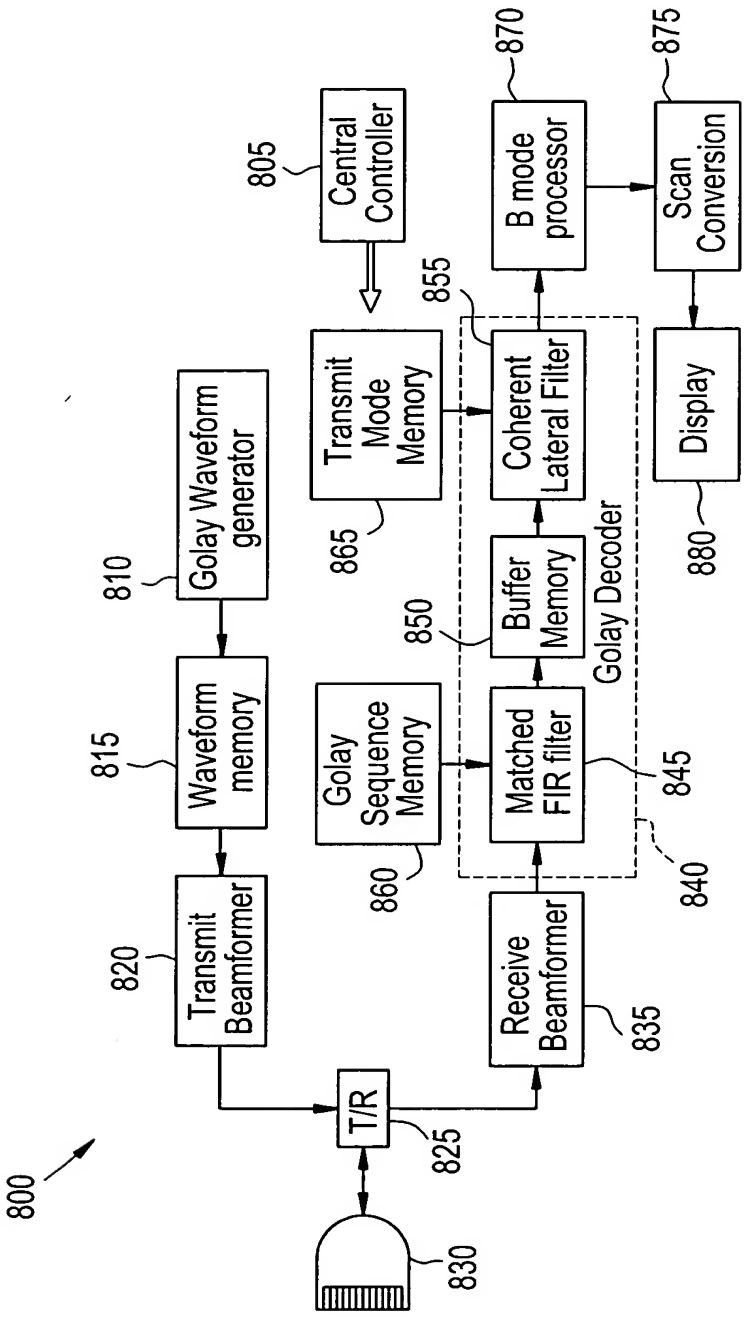


FIG. 8


800
805
Central Controller
810
Golay Waveform generator
815
Waveform memory
820
Transmit Beamformer
825
T/R
830
835
Receive Beamformer
840
Golay Decoder
845
Matched FIR filter
850
Buffer Memory
855
Coherent Lateral Filter
860
Golay Sequence Memory
865
Transmit Mode Memory
870
B mode processor
875
Scan Conversion
880
Display